RBC Global Asset Management

RBC Asian Equity Team Environmental, Social & Governance Report 2023

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Contents

Foreword

The huge style rotation and change of leadership in global stock markets, coupled with the rise of inflation and interest rates, has created something of a changing narrative for ESG recently with regard to investing

Unfashionable sectors over the last decade, such as energy and materials, have come roaring back. This has put pressure on fund managers who have been dogmatic in their exclusion of cyclical sectors with high capital intensity, given the impact such dogmatism creates for their relative performance against broader benchmarks. The room for manoeuvre has typically led to a softening of lines previously drawn for some, or for more esoteric investment choices, for others to mitigate specific factor risks. In reality, where some European countries that were at the forefront of energy transition efforts in recent years have suddenly found themselves reopening old coal mines on account of losing access to Russian gas, a reassessment of the environmental trajectories of economic planning has been inevitable.

For investors such as ourselves, we continue to adapt to the changing environment, and we believe that our process is best served by looking across all sectors and searching for improving company profiles and stories that score well on a sector-relative basis. Active management and due diligence, backed with industry expertise, can produce the best results for our clients, both in terms of capital appreciation and positive environmental, social and governance ("ESG") outcomes. Incorporating ESG into our investment process is a dynamic and evolving process, and will continue to be going forward.

More recently, there has been significant focus on governance in India on the back of short selling attacks on one of the larger corporates in the country. We believe that our process kept the proverbial bargepole close at hand when considering an investment in any related party to that corporate over recent years, despite huge share price returns and rising benchmark index weights. We continue looking to avoid management teams with the wrong incentive structures that may encourage unscrupulous practices, resulting in abdication from broader responsibilities to their customers or employees. We believe that such companies are on ultimately unsustainable trajectories that will impact their returns to us as shareholders, and effect a permanent impairment of our clients' capital.

"We continue looking to avoid management teams with the wrong incentive structures that may encourage unscrupulous practices."

We have learned a lot over the last decade that we have been together as a team. We have made good progress, but we recognise that we must continue to refine and improve upon our existing processes. We hope you enjoy the insights into our ESG activities in this report and we welcome any feedback.

Our approach to ESG

ESG factors are an important part of our fundamental, active investment management process, and we believe that incorporating them into our process allows for a more robust risk assessment. We have engaged with ESG issues since our investment track record began in 2014. In this section, we provide an overview of what ESG means to our team, its importance to our approach and how we integrate ESG factors into our process.

What is ESG integration?

ESG integration incorporates the consideration of material environmental, social, and corporate governance attributes of a company into the investment process. Such factors are typically non-financial, often going beyond information directly disclosed by the investee company.

Environmental factors include sustainability and resource usage, while social factors address topics such as community impact and employee relations. Corporate governance focuses on factors such as shareholder rights, voting and board accountability. Engaging regularly with companies on such matters is an important part of our day-to-day activities, often through direct meetings with senior management. For companies that we own in our portfolios, we thoughtfully exercise the voting rights of the accounts we manage. We discuss this further in the 'Proxy Voting' section of our report.

How we integrate ESG

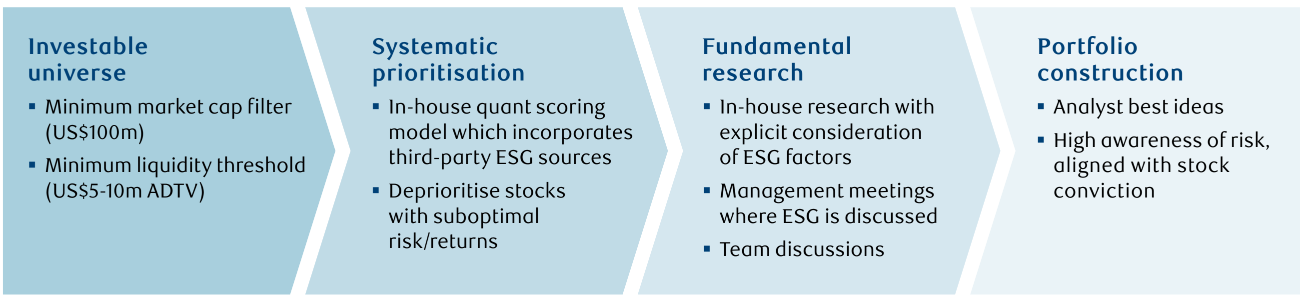
Our approach to incorporating ESG is not one distinct step in our investment process; rather, the consideration of these factors is embedded throughout. To do this, we access and analyse information from a broad array of sources, including external data providers and, more importantly, on-the-ground channel checks. The data points gathered from these sources can be both quantitative and qualitative.

Our investment process comprises four stages (Figure 1), of which the first stage is based on minimum market cap and liquidity filters. ESG factors play a key role in stages two and three. In stage two, the systematic prioritisation stage, our in-house, quantitative scoring model incorporates various accounting ratios and third-party ESG data sources alongside fundamental factors that drive the model. This proprietary model allows us to deprioritise stocks with suboptimal risk-adjusted returns, narrowing the number of stocks and adding focus and depth to our fundamental research.

In stage three, the fundamental research stage, we meet with management to discuss key ESG issues specific to each business. ESG materiality is an important consideration here. The relevance of particular ESG issues vary from industry to industry, or country to country, making bottom-up company research the most effective way to understand the opportunities and risks facing each business. The organisation of research coverage within our team supports analysts in acting as specialists in their respective fields, allowing for a better understanding of key ESG controversies within each sub-sector or market. Our ESG view is summarised in an in-house checklist, which is then translated into an ESG score.

Finally, stage four, the portfolio construction stage, gathers each analyst's best ideas. Aided by data analysis on the portfolio's exposure to active risk, our portfolio engineer and team discuss how the aggregate exposure is aligned with our fundamental stock views. We share a common culture of ESG awareness, and positions that are contributing disproportionately to the portfolio's ESG risk are discussed. This process is ongoing; after a stock has been incorporated within the portfolio, we continue to consider ESG factors at both stock and portfolio level, and update each holding's profile.

Figure 1: Investment process



Source: RBC GAM. Note: specific stock numbers vary by fund.

Figure 2: ESG is key to our fundamental, active investment management

	Quantitative	Qualitative	Beyond
Key activities	▪ Proprietary quant process/tools ▪ Accounting quality screens ▪ In-house audit/quant specialists ▪ 3rd party research (GMT, MSCI, ESG, HOLT Risk, Sustainalytics)	▪ In-house research notes and investment checklist with ESG rating ▪ Use of third-party data specialising in ESG e.g. past several years of company's litigation or media coverage	▪ Meetings/calls where ESG is discussed ▪ On-the-ground channel checks ▪ Sector specialist team structure ▪ Interviews e.g. industry experts, regulators, competitors, local investors
Outcomes	▪ Integrity of financial information ▪ Sustainability of cash flows	▪ Holistic, throrough, consistent process ▪ Long-term view	▪ We consider ESG from both a company and industry perspective

Integrated by the investment team throughout the entire process

Source: RBC GAM, as at February 2023.

To illustrate tangibly how ESG is integrated throughout our process, Figure 2 provides detailed examples of our key activities and the outcomes.

From a quantitative perspective, we utilise a number of third-party research tools such as MSCI, Sustainalytics, HOLT and GMT Research as a way to collect data more efficiently and obtain different points of view. These first two tools focus on 'traditional' ESG issues, while the latter two use accounting research to detect aggressive accounting, thereby helping us avoid companies that may be 'window-dressing' their financial statements.

"Within our team, the industry expert who assesses a business and builds an investment thesis is the same individual who is accountable for the ESG aspects of that holding."

From a qualitative angle, our in-house research determines our ESG views on portfolio holdings. Within our team, the industry expert who assesses a business and builds an investment thesis is the same individual who is accountable for the ESG aspects of that holding. By design, our team structure and investment process take a holistic and long-term approach to ESG research. Our thorough assessment of each holding is summarised using an in-house ESG checklist that generates an ESG rating from A-E; all holdings must have a rating of C or above. The ratings are updated regularly throughout our holding period.

We work to cultivate in-depth and ongoing dialogues and to establish long-term relationships with management teams. We seek to understand how a company is approaching material ESG issues, and we convey our views through proxy voting and engagement. We believe that over time these suggestions lead to positive change.

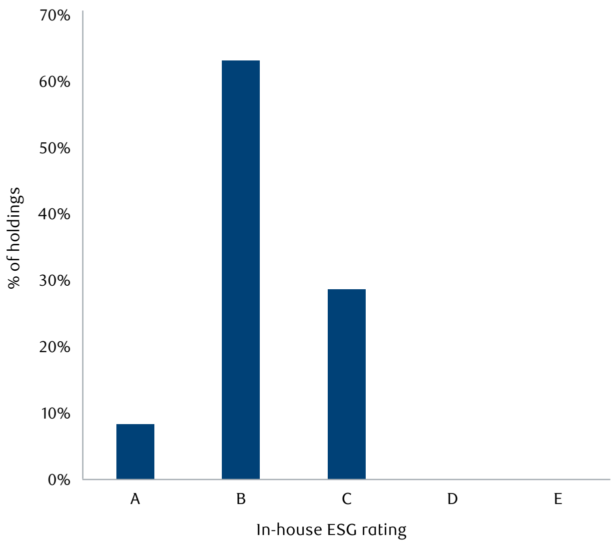
Proxy voting

As an asset manager, we have an obligation to act in the best interests of the accounts that we manage. We take this responsibility seriously. It is our policy to exercise the voting rights associated with each of the securities held in accounts we manage with a view to enhancing their long-term value, and by extension, the long-term performance of our clients' portfolios.

Engagement

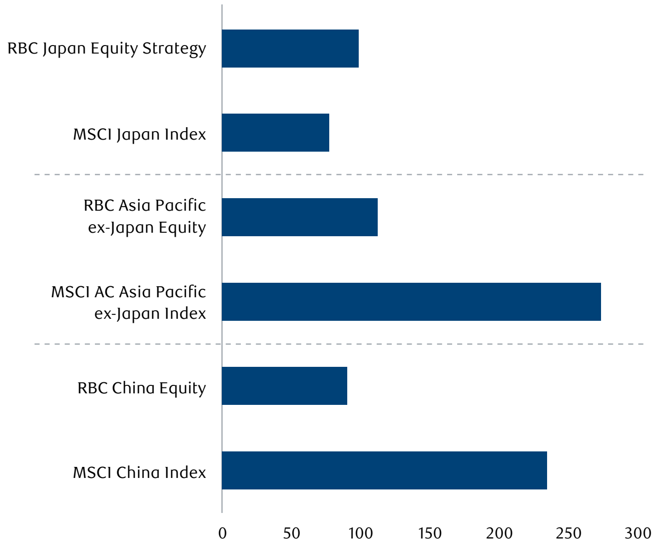
We engage actively with all our investee companies. We conduct a significant number of company meetings and calls every year, where we discuss ESG matters directly with company management. During these meetings, we raise material ESG-related concerns, so we can better understand how a company is approaching these risks and opportunities. We also conduct channel checks and consult our industry experts to ensure we have a holistic and unbiased view of the companies we invest in. Our sector specialist team structure allows our sector analysts to consider ESG within a broader industry context.

Figure 3: In-house ESG ratings



Source: RBC GAM, as at January 2023. A total of 171 companies held across RBC Asia Pacific ex-Japan strategy, RBC Japan Equity strategy and RBC China Equity strategy.

Figure 4: Carbon intensity for portfolios managed by RBC Asian Equity team



Source: RBC GAM, MSCI. Data as at December 2022. Carbon Intensity refer to metric tons carbon dioxide/USD 1 million revenues.

Summary

We consider ESG factors within each step of our investment process, facilitating robust risk and reward assessments of each stock we consider, and of the portfolio as a whole. The integration of ESG aligns with our investment philosophy of finding great businesses led by reliable management, companies that display high or improving return on capital, with strong balance sheets, that can outpace market expectations.

ESG engagement cases

Our approach to engagement is to encourage in-depth and ongoing dialogues with the companies in which we invest and to establish long-term relationships with management teams. We believe that over time, our suggestions could lead to positive change. We engage with management via three main methods: **1)** one-on-one updates either in person or via conference calls, **2)** group meetings and **3)** proxy voting. Notable, recent engagement examples include the following:

Sustainable supply chain

We are invested in a Japanese conglomerate with a consumer electronics arm, and we discussed with management how it ensures its suppliers comply with the company's supply chain of conduct. We found out that suppliers are subject to ongoing audits both from the company and third-party providers, and the company has taken steps to ensure the minerals it uses in its electronics are from conflict-free areas.

Providing services to under-served communities

Rural communities are often left behind as infrastructure is focused on urban areas. We engaged with an Indian telecoms operator and it highlighted that it has successfully trialed a 5G 700 MHz to provide network connectivity to rural areas, to ensure under-served communities also have access to infrastructure.

Medical humanitarian aid

We are invested in a Japanese pharmaceutical company that arranged to have medicines for infectious diseases sent to Ukraine. This pharmaceutical company is also contributing towards vaccination and drug research for Covid-19.

Fair pricing practices for medical products

We believe companies should not overcharge clients and should ensure their products bring value to clients. We engaged with an Australian healthcare company and found out it prices its products based on the clinical benefits its therapies deliver, as well as the cost savings it provides to the overall healthcare system. The company also considers patients' needs and preferences, and how its therapies improve patients' quality of life and productivity.

Digital responsibility

Consumers expect flawless connectivity, security, and easy access to a growing range of products and services in an increasingly digital world. We are invested in a Korean electronics company that understands that safeguarding personal information at the highest security level is paramount. Through our engagement, we feel that the company reviews security at every stage of product development – product planning, design, testing, and release – and provides transparent protection of personal information after each product is released.

Employee safety

The safety of employees and the communities in which our investee companies operate is paramount. We are invested in an Australian mining company, an environment which could potentially expose the workforce to risk. Our engagement highlights that the company ensures that safety comes before productivity, implementing a large array of verification and protection measures to reduce the risk of fatalities. The company has recorded zero fatalities since 2019.

Employer of choice and human capital development

Companies that can retain and develop their human capital can typically maintain a competitive advantage in today's knowledge economy. We engaged with an Indonesian telecoms provider whose employee satisfaction ranks above that of peers. Through our interactions, the company highlighted its ability to retain and develop its employees, through both financial and non-financial rewards. It is able to provide a long-term development path and offer attractive career opportunities within the company.

Proxy voting

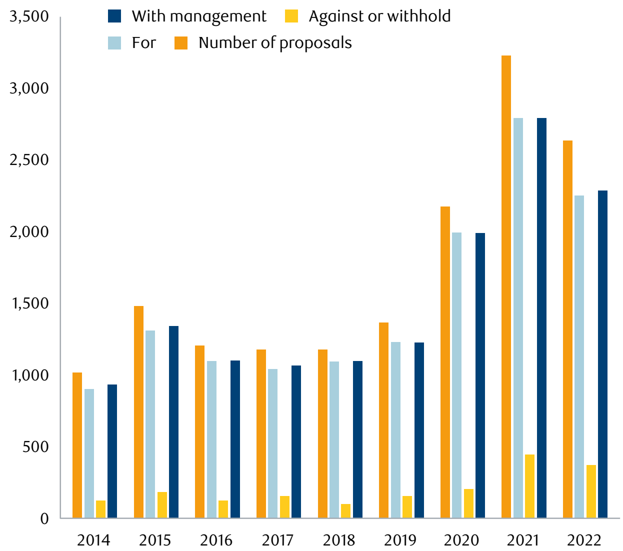
Proxy voting is a key part of our active ownership, providing an important way for us to convey our views to company boards and management teams. Voting responsibly is part of our fiduciary duty. In Asian markets, we rely on our proxy advisor to make voting recommendations but we still review each ballot item and vote based on our own assessment of specific company circumstances.

To arrive at our voting decisions, RBC GAM's Corporate Governance & Responsible Investment team draws upon its own expertise and that of our investment teams. The team uses data from leading research firms, and engages with companies and other shareholders, if necessary.

> "Proxy voting is a key part of our active ownership."

RBC GAM also has a clear policy on managing conflicts of interest to protect the independence of our voting decisions and procedures from commercial or other influences. Figure 5 highlights our team's voting history since 2014.

Figure 5: RBC Asian Equity team – voting history since 2014



Source: RBC GAM. Data as at January 2023. Reflects combined voting data from RBC Asia Pacific ex-Japan strategy, RBC Japan Equity strategy and RBC China Equity strategy. Only key proposal categories have been listed, for clarity purposes.

Our decision to invest in a company reflects, at least in part, our confidence in its management. That is why we often support management on routine matters, as reflected in our voting patterns in Figure 6. However, we will not hesitate to withhold our support or oppose management if we believe it is in the best interests of shareholders and our clients to do so.

Figure 6: RBC Asian Equity team proxy voting – proposal categories since inception

Proposal category	Number of proposals	With management	Against management	% against management
Elect director	6,728	6,320	408	6%
Approve auditors and their remuneration/ ratify auditors	955	905	50	5%
Approve remuneration of directors	332	308	24	7%
Approve issuance of equity without preemptive rights	249	68	181	73%
Approve remuneration policy or report	163	141	22	13%
Approve acquisition or issue shares in connection with acquisition	160	96	64	40%
Authorize reissuance of repurchased shares	137	0	137	100%
Elect members of audit committee	73	63	10	14%

Source: RBC GAM. Data as at January 2023. Reflects combined voting data from RBC Asia Pacific ex-Japan strategy, RBC Japan Equity strategy and RBC China Equity strategy. Only key proposal categories have been listed, for clarity purposes.

Country level ESG assessment

This section of the report focuses on country level ESG factors. Companies are affected by the environment of the countries in which they operate. We believe that countries with improving or high ESG scores are more likely to deliver sustainable growth compared to countries with falling or low scores. In this section, we use independent third-party indices to reflect changes in ESG performance over time.

Methodology

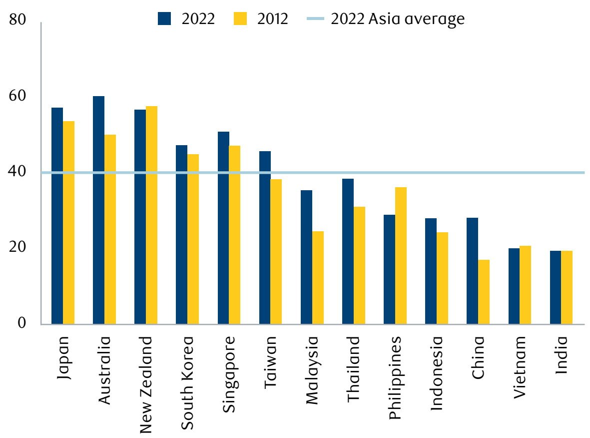
For the environmental factor, we use Yale University's *Environmental Performance Index* ("EPI")[1]. Using 40 performance indicators across 11 issue categories, the EPI ranks 180 countries on climate change performance, environmental health, and ecosystem vitality.

For the social factor, we use Freedom House's *Freedom in the World Index* ("FWI")[2]. FWI evaluates the state of freedom based on two subcategories: political rights and civil liberties. Each country is assigned a score between zero to four points across 25 indicators, for a potential total score of 100.

For country governance, we use Transparency International's *Corruption Perceptions Index* ("CPI")[3]. The CPI draws on 13 surveys and expert assessments to measure public sector corruption in over 170 countries and territories, giving each a score from zero (highly corrupt) to 100 (very clean).

Environmental

Figure 7: Asia's EPI by country (out of 100)



Source: Yale University EPI, as at 2022.

[1] https://epi.yale.edu/.
[2] https://freedomhouse.org/report/freedom-world.
[3] https://www.transparency.org/en/cpi/2021.

Observations

The average EPI in Asia was 39.6 in 2022, an increase from the 2012 average of 35.8 (Figure 7). Overall, Asia had a lower EPI score than the global average of 43.1, which increased from the 2012 global average of 39.7.

Unsurprisingly, the more developed countries in Asia have a higher environmental score, as they are financially able to address their environmental footprints. It is positive to see that most developing countries in Asia have shown progress. Notable exceptions were the Philippines, which regressed, and India, which scored the lowest and showed no progress.

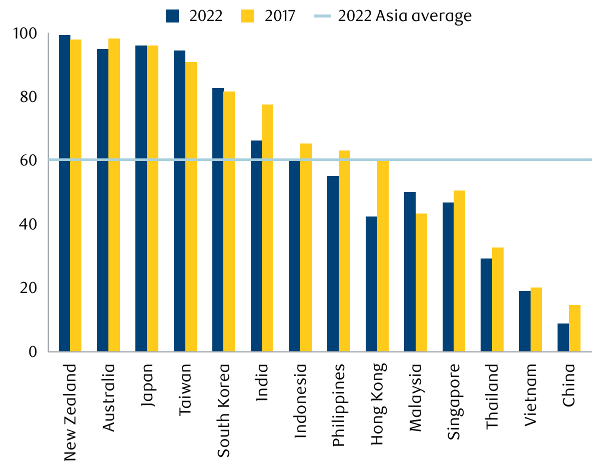
The countries with the most significant improvements include Australia, China and Malaysia. Australia has shown progress on improving biodiversity and limiting acidification, by controlling the emission of sulfur dioxide. For China, the study has shown improvement in controlling the growth of greenhouse gases, including carbon dioxide, and a focus on limiting acidification, by controlling the emission of nitrogen oxides. Malaysia has shown improvement in biodiversity and slowing climate change, by controlling the growth rate of greenhouse gases.

The Philippines was the only notable country that regressed within Asia. The score declined as the country's acidification score fell, given high growth in the emission of sulfur dioxide and nitrogen oxides. The country also scored poorly on climate change, with high growth of greenhouse gases.

India stands out for high environmental risk. On closer inspection, the poor EPI scores reflects low ratings for air quality and waste water treatment. We have seen government investments in acidification and water sanitation, leading to improved scores in these subcategories. If India's environmental performance does not improve, this could prove a risk to the country's long-term economic growth.

Social

Figure 8: Asia's FWI by country (out of 100)



Source: Freedom House, as at 2022.

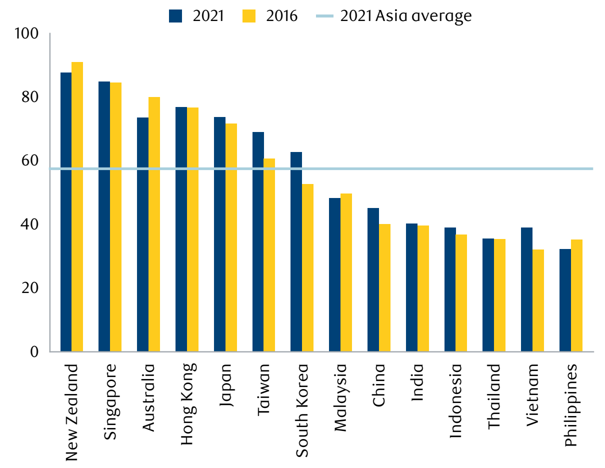
Observations

In Asia and globally, we have seen a deterioration in the political rights and civil liberties of citizens. The average FWI in Asia was 60.3 in 2022, a decline from the 2017 average of 63.8 (Figure 8). Overall, Asia had a higher FWI score than the global average of 55.7 in 2022, which decreased from the 2017 global average of 58.0.

China has the lowest FWI index score in our universe, decreasing from 15 in 2017 to 9 in 2021. The ruling Chinese Communist Party ("CCP") continues to tighten control over all aspects of life and governance, including state bureaucracy, the media, online speech, religious practice, universities, businesses, and civil society associations, and it has undermined an earlier series of modest rule-of-law reforms[4].

Governance

Figure 9: Asia's CPI by country (out of 100)



Source: Transparency International, as at 2022.

Observations

The average CPI in Asia was 57.4 in 2021, a small improvement from the 2016 average of 56.1 (Figure 9). Overall, Asia had a slightly higher CPI score than the global average of 43.3, which was slightly up compared to the 2016 global average of 42.9. We have seen improvements in China, South Korea and Taiwan. Countries that have regressed include New Zealand, Australia and Thailand.

The survey showed an improvement in China, as citizens have highlighted that the Chinese government has taken positive steps to combat corruption. Australia and New Zealand have both seen a small decline in their score, but overall their governments are highly regarded in their efforts to fight corruption, and citizens feel empowered to report cases.

Summary

We believe that the world will struggle to make meaningful progress with regard to climate risk without improvement from India, China and Indonesia. In the areas of social and governance, Asia performs higher than the rest of the world. The country analysis highlights that countries with high ESG risk within Asia include India (environmental), China (social), and the Philippines (governance). When we meet management teams of companies that are based in, or operate in, these countries, we need to be particularly aware of the specific risks. Countries that have shown improvement include Australia (environment), Malaysia (social) and South Korea (governance).

[4] China: Freedom in the World 2022 Country Report | Freedom House.

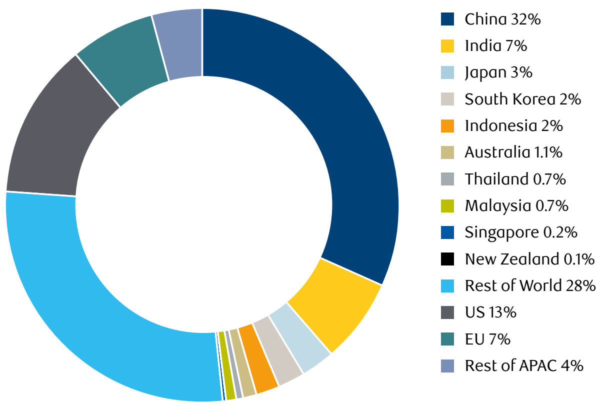
ESG thought piece

Decarbonisation in APAC: investing in clean technologies

Executive summary

- Asia Pacific ("APAC") accounted for 52% of global fossil fuel-related carbon dioxide emissions in 2020, raising the global importance of this region's decarbonisation pathway.
- National targets suggest that Asia's absolute emissions will broadly remain flat this decade. Within Asia, growth in absolute emissions from emerging economies will be partly offset by emissions reduction from developed economies. GDP will grow faster than emissions, so we shall see significantly reduced emissions per GDP this decade.
- Significant investments are required to meet decarbonisation targets; we have identified multiple verticals that will benefit from investments in clean technologies.

Figure 10: Share of global fossil fuel-related CO_2 emissions (2020)



Source: European Commission Joint Research Centre, World Bank, Goldman Sachs Investment Research, as at November 2022.

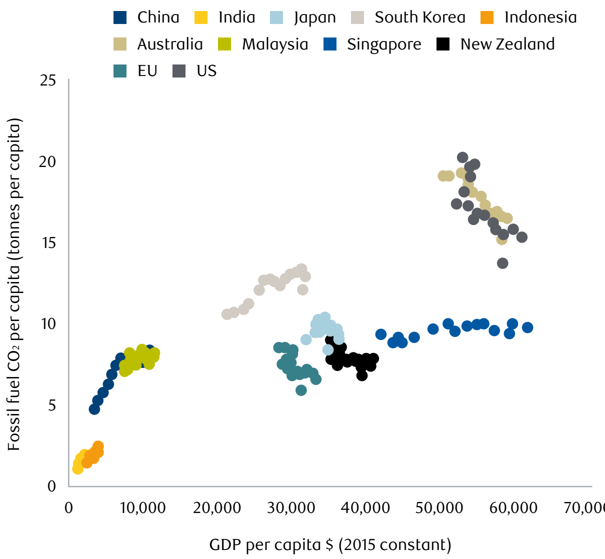
Asia plays a focal role in global decarbonisation

As of 2020, APAC accounted for ~52% of global carbon dioxide emissions (Figure 10), making the region critical in helping the world meet net-zero emission reduction goals. We believe the path towards net-zero will bring unique opportunities and challenges in Asia, considering the role that governments, companies and consumers will have to play in driving balanced outcomes for socio-economic growth, while mitigating the region's impact on the global climate system.

> "As the need to address climate change becomes increasingly more urgent, this may lead to accelerated national initiatives."

While Asia's absolute emissions are high in a global context, emissions on a per capita basis in most emerging economies within the region are significantly below those of developed counterparts (Figure 11). As the need to address climate change becomes increasingly more urgent, this may lead to accelerated national initiatives in the long term to offset the environmental impact of the growth in total energy demand, as local economies continue to develop.

Figure 11: GDP and carbon dioxide emissions per capita for major Asian economies, U.S. and EU before land use change/offsets/carbon sinks (2005-2020)



Source: European Commission Joint Research Centre, World Bank, Goldman Sachs Investment Research, as at November 2022.

While most major Asian economies have set net-zero targets, ambitions vary in terms of timelines largely due to differences in the economic stage of development

More developed economies in the region, such as Japan, Korea, and Australia, have set net-zero targets by 2050, in line with other developed economies around the world. Many emerging countries in the region have announced targets that extend beyond the 2050 timeframe, including China and Indonesia (2060), Thailand (2065) and India (2070). The ability of these countries to reach net-zero will largely hinge on potential cost breakthroughs in green technologies and the level of coordination between stakeholders, including corporates, consumers and governments, to shore up capital to meet investment needs.

Asia's absolute emissions will broadly remain flat this decade

If major Asian economies achieve their stated Nationally Determined Contributions ("NDCs") by 2030, absolute emissions in the region should increase by ~5% by 2030 versus 2020. By comparison, developed economies like the EU and the U.S. are currently targeting ~33-36% reduction in absolute emissions by 2030 versus 2020 (Figure 12). Despite the lack of absolute emissions reductions through this decade, targets set by Asian economies will require a significant transformation in the region's energy system, to offset the environmental impact of economic growth where renewables and energy efficiency will play critical roles.

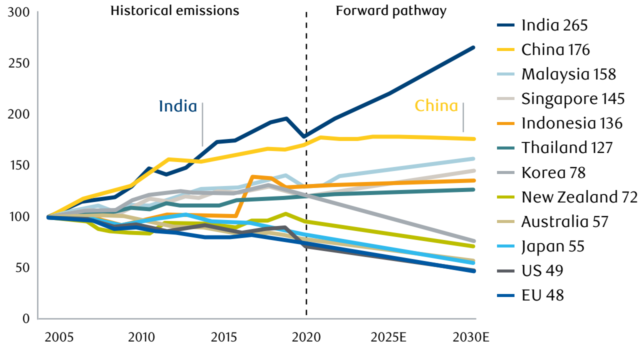
Within Asia, growth in absolute emissions from emerging economies will be partly offset by emissions reductions from developed counterparts

Asia's overall aggregate emissions are expected to growth by 5% in 2030 compared to 2020, with India expected to see the largest growth in carbon dioxide emissions, followed by China. This will be offset by reductions in Japan, South Korea and Australia (Figure 13).

Emissions intensity per GDP will reduce by 30% in Asia

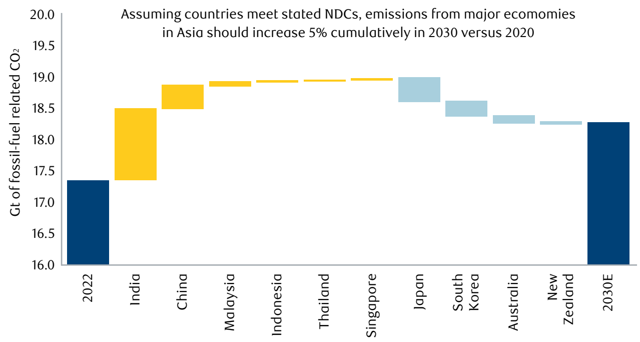
Despite a growth in absolute emissions, Asian economies are targeting to significantly reduce emissions per GDP this decade (Figure 14). In aggregate, real GDP growth forecasts from Goldman Sachs indicate that major economies in Asia will achieve 50% cumulative growth in GDP with a 5% increase in absolute emissions, implying a 30% reduction in emissions intensity per GDP this decade.

Figure 12: Carbon dioxide emissions pathways, assuming countries meet stated NDCs (indexed to 2005)



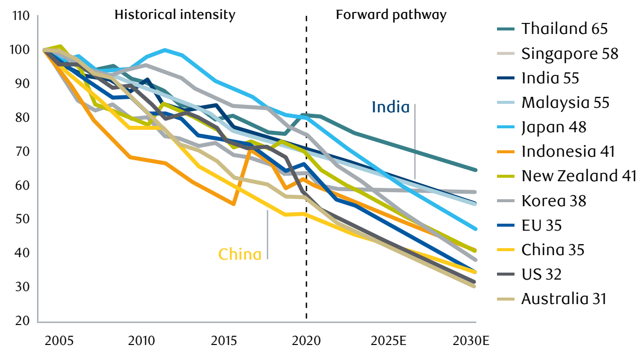
Source: UNFCCC, Goldman Sachs Investment Research, as at November 2022. Note: absolute emissions pathways are based on stated unconditional targets.

Figure 13: Carbon dioxide emissions from 2020-2030 for major Asian economies, assuming countries meet stated NDCs



Source: UNFCCC, European Commission Joint Research Centre, Goldman Sachs Investment Research, as at November 2022. Note: we have not included target-implied pathways for the Philippines due to insufficient historical data for its national emissions.

Figure 14: Carbon dioxide emissions intensity per GDP pathways, assuming countries meet stated NDCs (indexed to 2005)



Source: UNFCCC, Goldman Sachs Investment Research, as at November 2022. Note: emissions intensity pathways are based on stated unconditional targets.

Figure 15: APAC-exposed stocks with revenue and capex alignment to clean technologies

Renewable equipment	Green metals & materials	Green mobility	Batteries	Hydrogen	Integrated energy	Energy efficiency	Power supply	Renewable utilities	Circular economy
Luoyang Xinqianglian (300850.SZ)	Zijin Mining (601899.SS)	Nissan (7201.T)	SK Innovation (096770.KS)	Air Products & Chemicals (APD.N)	Reliance Industries (RELL.N5)	ASML (ASML.AS)	Kehua Data (002335.SZ)	Renew Energy (RNW.OQ)	GEN (002340.SZ)
Flat Glass (6865.HK)	Freeport-McMoRan (FCX.N)	Li Auto (2015.HK)	LG Chem (051910.KS)	Ceres Power (CWR.L)		Universal Display (OLED.OQ)	NARI Technology (600406.SS)	West Holdings (1407.T)	
Ming Yang Smart Energy (601615.SS)	Jiangxi Copper (600362.SS)	Honda (7267.T)	Samsung SDI (006400.KS)			Hongfa Technology (600885.SS)		Xinyi Energy (3868.HK)	
LONGi (601012.SS)	BHP (BHP.AX)	Toyota (7203.T)				Shenzhen Inovance (300124.SZ)			
Sungrow (300274.SZ)	Rio Tinto (RIO.AX)	Mercedes Benz (RMBGN.DE)							
	Toray (3402.T)	BMW (BMWG.DE)							
	Ganfeng Lithium (1772.HK)	Suzuki (7269.T)							
		Aptiv (APTV.N)							

Source: UNFCCC, European Commission Joint Research Centre, Goldman Sachs Investment Research, as at November 2022.

Beneficiaries of Asia's transition towards net-zero

We believe companies that are enabling Asia's climate transition through exposure to various green technologies, commodities and business solutions will benefit in the longer term. As local governments continue to accelerate decarbonisation initiatives, stocks with exposure to Asia that have revenue alignment to green solutions should benefit from secular demand tailwinds.

The companies below have meaningful revenue alignment (>25% revenue alignment) to UN SDG 7 and revenue exposure to APAC (>25% revenue exposure to the region) (Figure 15). On average, these companies have outperformed by ~50% versus their respective benchmarks, since the beginning of 2021.

We believe this has been primarily driven by:

1. Increasing investor recognition of Asian companies' long-term growth opportunities in helping address global decarbonisation objectives.
2. Increasing focus on national decarbonisation by Asian economies before and after COP26 in November 2021.

Summary

Asia plays a focal role in global decarbonisation, given that it accounts for a significant portion of global emissions. Accelerated national initiatives are being put in place to offset the environmental impact of growth as local economies, in particular emerging Asia, continue to develop. Companies in Asia will play a significant role in deploying various green solutions that will be needed to accelerate decarbonisation both domestically and offshore, as a significant portion of the global manufacturing capacity of critical green technologies is concentrated in the region.

ESG thought piece

From farm to fork: the digital way

As part of our ongoing insights into China as a leading digital economy, we look at the impact of digital transformation on reducing social inequality, a key pillar of President Xi Jinping's common prosperity campaign. Here we offer our views on the ambitious goals of Chinese policymakers to develop the agriculture sector via technology, the role of China's internet giants in achieving these goals and the commercial, societal and environmental benefits to consumers and crop producers.

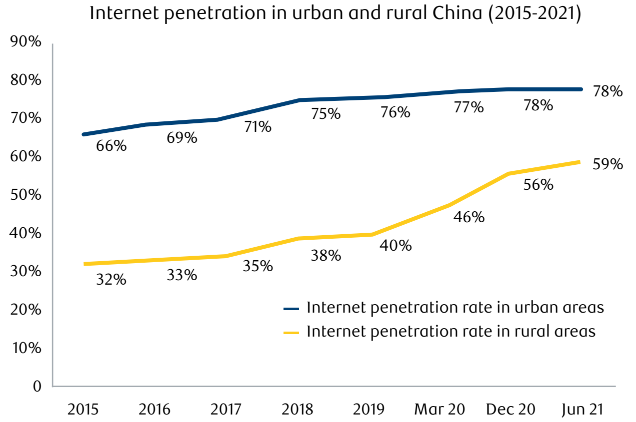
The facts behind the farming

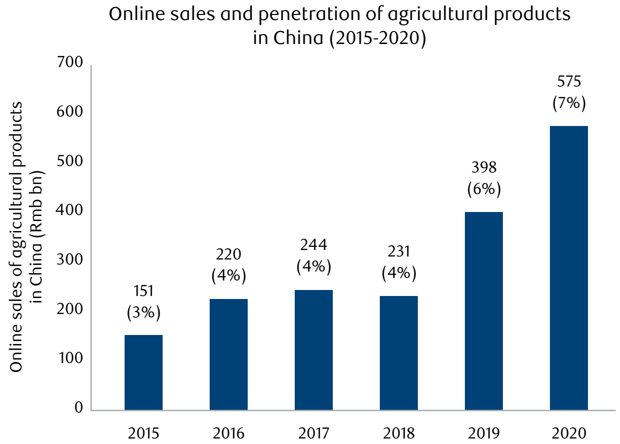
- As of 2020, 350 million farmers in China's agricultural sector and 550 million residing in rural areas accounted for 25% and 39% of the country's population respectively[5].
- The Chinese government has targeted online penetration of agricultural products and produce to reach 15% of total sales, by 2025[6].
- The goal to elevate the productivity and income levels of farmers has been mentioned in the No.1 policy statement for 17 consecutive years, since 2004[7].

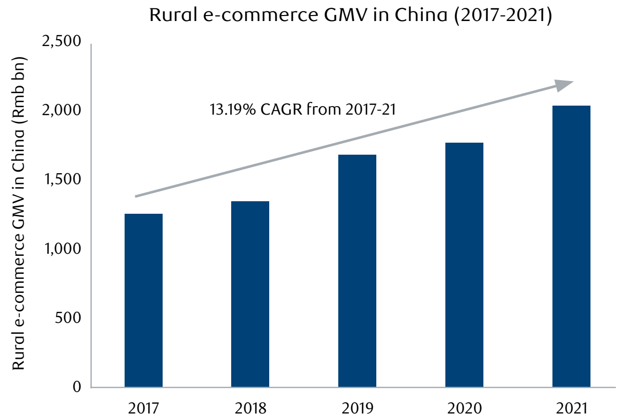
Technological transformation

China's e-commerce industry has witnessed staggering growth in recent years and currently stands at around Renminbi ("Rmb") 13 trillion (USD2.3 trillion)[8], which accounted for almost half of the global e-commerce market in 2021. Rural internet users exceeded 300 million by mid 2021; this remarkable growth is in large part due to the uptick in internet penetration in rural China, with e-commerce adoption being a key driver (Figure 16). From this, a Rmb422 billion market (USD66 billion)[9] of e-commerce-ready agricultural products has emerged, driven by consistent policy support and the robust infrastructure build-out in rural China.

Figure 16: Rural internet users are triggering new growth in Chinese e-commerce







Source (Chart 1): Cyberspace Administration of China. Data as at June 2021.
Source (Chart 2): Ministry of Agriculture and Rural Affairs of the PRC. Data as at 2020.
Source (Chart 3): Ministry of Agriculture and Rural Affairs of the PRC. Data as at 2021.

[5] Rural population (% of total population) - | Data (worldbank.org).
[6] Ministry of Agriculture and Rural Affairs of the People's Republic of China.
[7] The State Council.
[8] Chinese e-commerce market to reach USD3.3 trillion in 2025, says GlobalData - GlobalData.
[9] E-commerce boosts rural development - Chinadaily.com.cn.

Connecting consumers with crop growers

By the end of 2020, leading Chinese e-commerce platforms including Alibaba, JD.com, Pinduoduo, Meituan and even ride-hailing company Didi Chuxing, were selling farm produce via the consumer-to-manufacturer (C2M) channel. By bypassing layers of middlemen such as county, city and provincial distributors and legacy logistics infrastructure, many of China's 1.3 billion consumers were able to purchase agricultural products, usually in bulk, through a few simple clicks on their mobile devices.

The development process of the C2M business model has been smooth and for crop growers, the C2M business model has been a game changer, backed by the government as well as e-commerce giants. Where opposition has occurred, this has been mainly from distributors whose businesses have been negatively impacted or farmers who are illiterate and/or without internet access. However, such is the level of commitment around C2M that major internet companies, such as Pinduoduo and Alibaba, are working with farmers to provide the necessary support.

In 2020, the per capita annual income of Chinese farmers was approximately less than one tenth of their counterparts in the United States[10, 11], with the highly inefficient supply chain in China largely to blame. As shown in Figure 17, on average, fresh produce in China typically passed through 4-6 intermediaries before reaching the plates of the end consumer. With each intermediary charging 10-15% mark up, farmers made thin margins while their profits failed to reflect their value-add.

By eliminating layers of inefficiencies, the share of farmers' profits is substantially higher. It is not uncommon for farmers to make twice the profits on digital platforms than they would otherwise. In addition, the potential market for a farmer's fresh produce now spans the entire reach of platforms, creating a win-win for consumers and producers alike. Agricultural-related gross merchandise volume (GMV) on the Pinduoduo platform, for example, exceeded Rmb270 billion (USD42 billion) in 2020[12].

"In addition, the potential market for a farmer's fresh produce now spans the entire reach of platforms, creating a win-win for consumers and producers alike."

That said, the C2M model is still in its early stage of development and comes with challenges. Critics argue that it is not economically sustainable for e-commerce players to invest in this new business model as agricultural produce has a low basket value and consumers are typically price sensitive. Moreover, as agricultural produce is easily perishable, a substantial amount of investment is required to improve the fulfillment capabilities such as building regional warehouses and sorting centres, as well as upgrading the legacy logistics infrastructure. In the near term, profit margin for platforms may remain thin. While companies are making tangible progress, the long-term economic viability remains to be seen.

[10] The State Council: The People's Republic of China.
[11] USDA ERS - Farming and Farm Income.
[12] Pinduoduo doubles agricultural GMV to record 270 billion yuan in 2020 | Nasdaq.

CGB: an innovative e-commerce model

China's logistical buildout in lower-tier cities has historically lagged those of its top-tier cities, with transportation costs for wholesale of crops much higher than in developed countries.

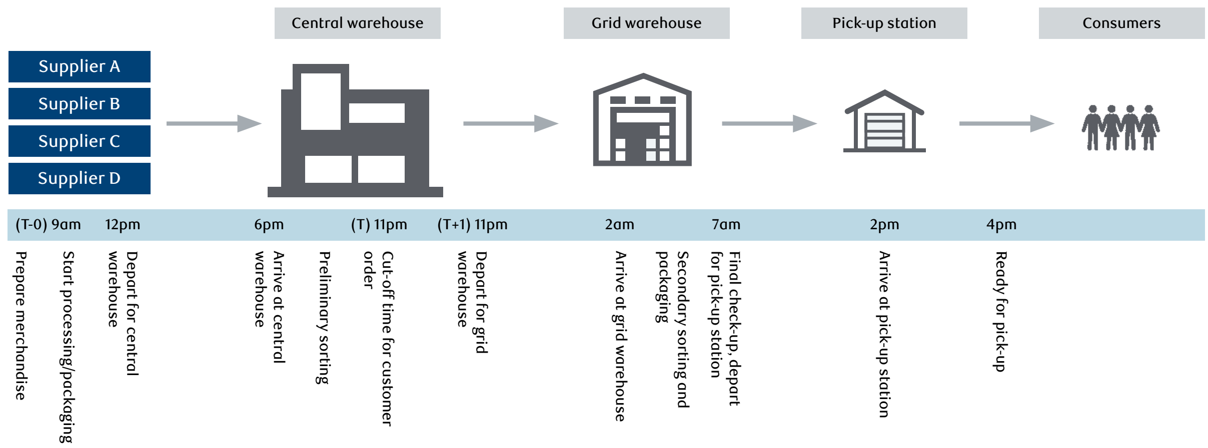
To narrow this gap, leading Chinese e-commerce platforms pioneered the widely-adopted Community Group Buy (CGB) model with the aim of maximising the commercial reach for fresh produce, as well as targeting waste reduction. In practice, it could work as follows:

Li, 26, is a farmer specialising in the production of purple garlic. Prior to joining Meituan's CGB platform, Li had to sell his agricultural products at a much lower price as the layers of distributors took a bulk of the profit and the lack of branding limited his bargaining power.

He also faced challenges planning the production quantity, as market information was not transparent. An e-commerce platform, such as Meituan, provides brand building for farmers like Li, paving the way for products to reach consumers directly in urban cities. Platforms market and deliver these brands to group leaders who are often local residents of the same community. In turn, these residents (or CGB leaders) take on the role of the local distributors with fresh groceries, such as the purple garlic, reaching end consumers in a much timelier manner.

Access to a wealth of customer data enables CGB platforms to consistently slash food waste across the value chain – particularly in the midstream logistics process – while also speeding up the delivery of fresh produce from farms to consumers (Figure 17).

Figure 17: The CGB model standardises processes across the supply chain and enables next-day delivery of agricultural products



Source: Macquarie Research. Data as at April 2021.

Waste not, want not

E-commerce operators have become a powerful driving force in reducing food wastage in China. In recent years, the country's grain loss wastage in the post-production process, including storage, transportation and processing, has reached 35 million tons, which is equivalent to the grain needs of 60-70 million people annually[13]. CGB platforms have been making efforts to standardize the supply chain and build comprehensive employee training programs to minimize wastage in different steps of the logistics and handling process. Under the legacy distribution and fulfillment model, 10-40% of grain production is wasted before reaching the consumers[14].

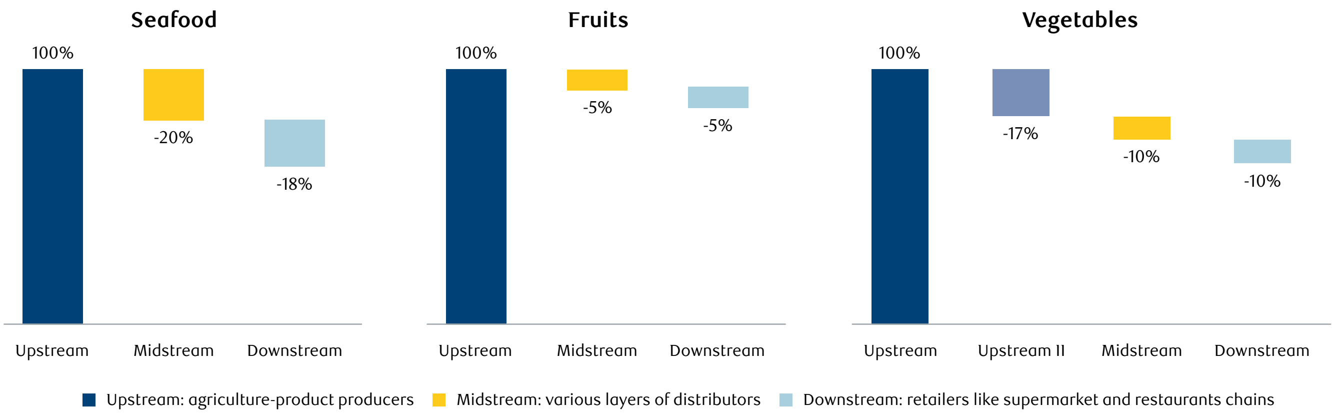
In recent years, the Chinese internet sector has poured billions of Renminbi in investments into physical warehouses as well as algorithms, in a bid to optimise storage and delivery efficiency. Meituan, for example, claims that its centralised system is capable of managing, in real time, each crop's maturation and duration, as well as transportation profile. Ultimately, Meituan aims to distribute fresh produce to reach end consumers at the peak of the life cycle, in order to minimize food wastage. It can also forecast demand so that farmers can plan capacity ahead of time. Apart from increasing farmers' income levels and optimising the logistics process, Meituan has also created a wealth of job opportunities for rural citizens. Other benefits include fostering digital inclusion and raising rural citizens' quality of life. Meituan and Pinduoduo, the two leading CGB platforms in China, have been recognised by the Chinese government for their contribution to the livelihood of rural citizens.

Capturing the opportunity

Beijing recognises the crucial need in digitalising its rural population to achieve its long-term development goals, and in turn, this development is creating exciting investment opportunities. E-commerce platforms have already begun to disrupt the agriculture supply chain. As their incomes increase, growers can reinvest in their farms and the technology to improve productivity, while consumers benefit from fresher and safer produce at lower prices. In turn, logistics providers are optimising their workflows while reducing spoilage along each step, resulting in savings along the value chain. These structural developments enable investors to reap the benefits of China's digital innovation.

Despite the uncertainty in policy direction around the internet in China, we believe companies with goals aligned to society's needs will be well positioned to create sustainable social and economic value. We feel excited and optimistic about China's future digital champions and what they can achieve through business over the long term.

Figure 18: Wastage ratios across key fresh produce categories



Source: Macquarie Research, as at April 2021.

[13] Xinhua | (xinhuanet.com).
[14] Macquarie Research. Data as at April 2021.

Company case study

IDP Education – Creating positive change through education

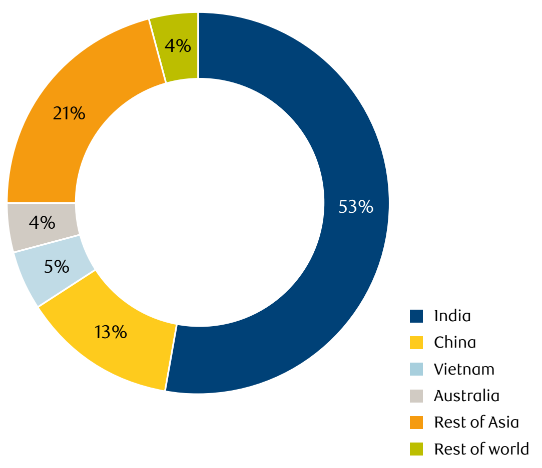
Throughout 2022, our team had meetings with IDP, an Australian education services provider. IDP performs strongly in our ESG framework as the company empowers individuals & communities through education. We engaged with company management on its progress on two topics:

1. Student placement volumes.
2. English language tests for immigration purposes.

Empowering students through education

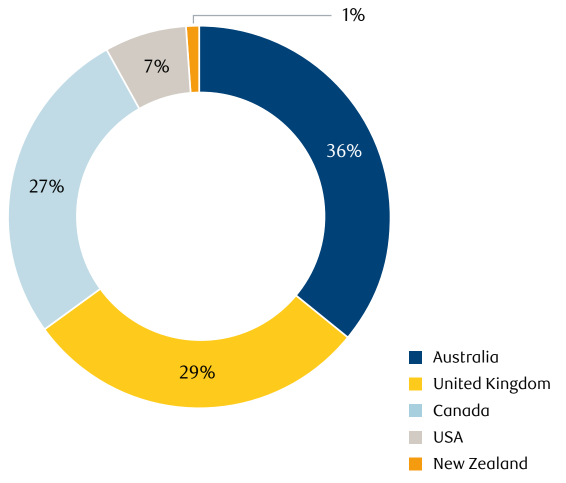
IDP places students from across 30 different countries, mainly India, China and Vietnam, into courses in destination countries, predominantly Australia, the U.K., Canada and the U.S. (Figures 19 and 20). We actively monitor the number of students IDP has placed and are encouraged to see that the company has gone from placing 20,000 students in 2013 to 55,000 in 2022.

Figure 19: Student's home country



Source: IDP Education 2022 Annual Report.

Figure 20: Student destination markets



Source: IDP Education 2022 Annual Report.

While student placement volumes declined during the Covid-19 pandemic in 2021, numbers recovered in 2022, highlighting the strong demand from students to look for education opportunities abroad (Figure 21).

> **"Moving abroad can be a stressful event, and this is where the IDP community can help support students."**

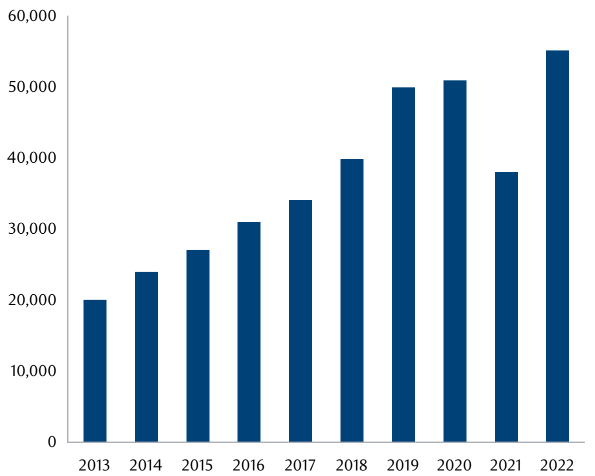
We find that students who use the IDP platform to enroll in courses are able to achieve learning and career aspirations. Students are looking for approachable, dependable and authentic advice, something that we found IDP is able to provide. When students move abroad, aside from education counselling, they also require support with visa paperwork, and this is something that IDP can help with. Moving abroad can be a stressful event, and this is where the IDP community can help support students. We find that IDP is aligned with UN SDG 4 which is about promoting education and lifelong learning opportunities.

Helping clients emigrate abroad

In order to emigrate to English-speaking countries such as Australia, the U.K. and Canada, a language test is required to demonstrate mastery of the language. IDP is the owner of IELTs, one of the most popular English tests accepted for work visa and other professional qualifications. IELTS is the only test trusted for migration purposes by all four governments of the U.K., Australia, Canada and New Zealand.

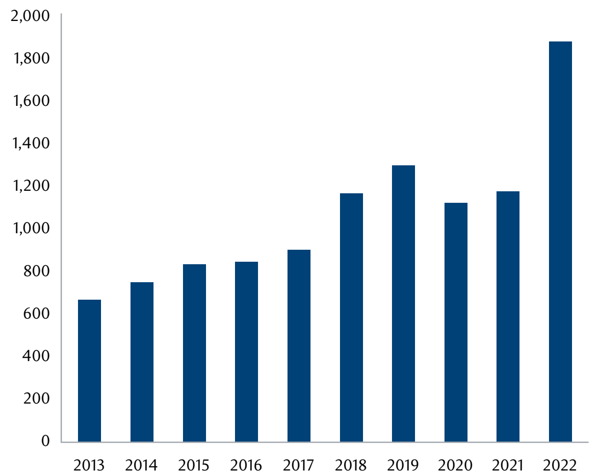
We researched why IDP is recognised by government organisations and found that it is because of its long history and integrity. IDP has robust security measures in place to avoid cheating in IELTs exams, which are considered "high stakes" exams as a successful placement could be life changing, allowing candidates to seek opportunities abroad. Management shared that IELTs volumes have steadily picked up and highlighted its world class security measurements, both pre and post test (Figure 22).

Figure 21: Student placement volumes



Source: IDP Education 2022 Annual Report.

Figure 22: IDP IELTS volumes (in 000s)



Source: IDP, as at 2022.

Summary

We believe that IDP is a company which helps its customers through its core business of education. We continually engage and will continue to monitor IDP's progress in helping students purse educational opportunities, and individuals in pursing migration opportunities.

Company case study

Hitachi – Working towards a sustainable society

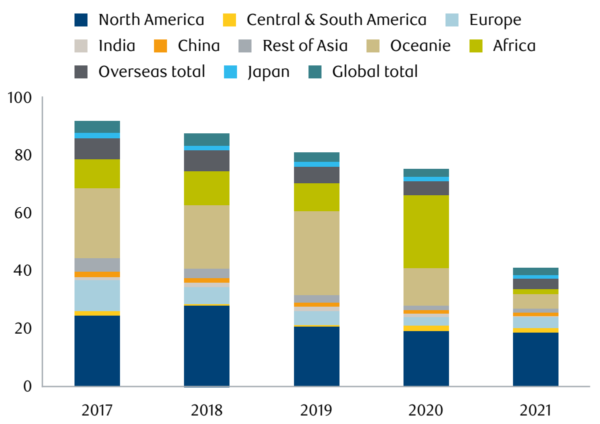
We find that Hitachi has been making progress in practising sustainable management and is broadly on track to achieve its mid-term sustainability plan for 2024. Hitachi Limited engages in the manufacture and sale of electrical equipment, operating through the following main segments: digital systems & services, green energy & mobility, connective industries, Hitachi Construction machinery, and automotive systems. Japan comprises 41% of revenues and overseas revenues account for the remaining 59%.

Hitachi aspires to support peoples' quality of life with data and technology that fosters a sustainable society. We engaged with the company, focusing on three key topics where Hitachi is delivering positive change: **1)** environment, **2)** providing a stable and safe infrastructure, and **3)** occupational health & safety.

Environment

Hitachi is a climate change innovator and it aims to contribute to the realisation of a carbon neutral society by way of its superior green technologies. The company also looks to promote resource efficiency towards the transition to a circular economy. On the environmental front, we found that the company is making progress towards increased consumption of renewable energy, reduction in total carbon dioxide emissions and a reduction in generated waste[15].

Figure 23: Hitach Group's global safety figures (occurrence rate)



Source: Hitachi Sustainability Report 2021. Note: occurrence rate is the rate of workplace accidents per 1,000 directly contracted employees.

[15, 16, 17] Hitachi Sustainability Report 2022.

Providing a stable infrastructure

Hitachi is a key supplier of infrastructure globally. Through its products and services, Hitachi contributes towards a stable energy supply for approximately 1.9 billion people[16]. It also provides railway systems services that contribute towards transport systems that benefit 15 billion users annually[17]. We asked management to identify risk and opportunities for these business lines. On power generation, management highlighted increased demand for electricity, and how opportunities lie in providing renewable alternatives. Management is also focusing on opportunities to apply digital technology to enhance the stability and efficiency of the power supply, particularly in developing countries.

For the railway systems, increased urbanisation will drive the railway business globally as an efficient method of transporting large numbers of passengers in a cost effective and environmentally friendly way. Hitachi has developed and is continually upgrading its railcars to more energy-saving models and is seeing growth from developing new rail systems in places such as Vietnam.

Occupational health & safety

We have found that Hitachi has made progress in reducing occupational accidents. We monitor Hitachi's global safety figures which are reported annually and are illustrated in Figure 23, and note that safety has improved over time, in particular in 2021, after the company established the safety and health management division to promote occupational health. Management highlighted to us that the creation of this division has led to progress in analysing the factors behind accidents, and the implementation of measures to prevent recurrence and sharing best practices across the firm. Steps have been taken to identify and reduce risks in high-risk activities such as working at heights, in high voltage situations and with toxic gases.

Summary

Hitachi is committed to sustainability, and this is giving the company an opportunity to grow its greener and more efficient product portfolio via its infrastructure offerings. Our engagement highlights that management is making steady progress towards its stated sustainability goals.

Company case study

AIA – Sustaining healthier, longer, better lives

We have been a shareholder of AIA for over seven years now. AIA Group is a pan-Asian life insurance company. It has a presence across 18 countries with its main markets being Hong Kong, China, Thailand, Singapore and Malaysia. AIA meets the long-term savings and protection needs of individuals by offering a range of products and services, including life insurance, accident & health insurance and savings plans.

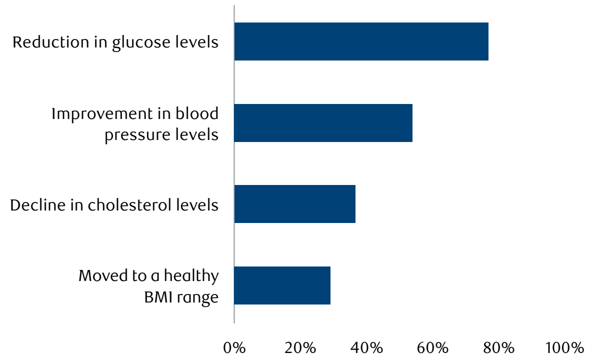
We think that AIA remains at the forefront of managing and reporting on ESG risks, and its annual sustainability report is a good example of this. AIA's latest iteration of the strategy was launched in March 2021, and built around five pillars: Health & Wellness, Sustainable Operations, Sustainable Investment, People & Culture and Effective Governance. Below we focus on two pillars where we specifically discussed and engaged with management: **Health & Wellness** and **Sustainable Investment**.

Health & Wellness

AIA aims to address the needs of customers by supporting their physical, mental and financial well-being. Management highlighted that doing this is beneficial for customers, and also lowers insurance claims for AIA. The company actively encourages the adoption of healthier lifestyles, and customers who make positive lifestyle changes are rewarded with discounts on their existing insurance policies.

AIA Vitality, its health and wellbeing program, currently has 1.9 million customers[18]. We have seen that AIA's efforts towards wellness have resulted in meaningful and tangible progress. Members of AIA Vitality have improved their vitality age by an average of 0.5 years since joining the programme. More specifically, members have seen health improvements in terms of blood pressure levels, cholesterol levels and improvements in body mass index (BMI), as illustrated in Figure 24.

Figure 24: Customer health improvements after joining AIA Vitality



Source: AIA Corporate Sustainability Report 2021.

Sustainable investments

We have found that AIA employs a consistent approach to addressing ESG issues, considering a range of factors, including but not limited to water shortage, energy supply, climate change, environmental regulations, labour supply and relations, resource scarcity/ bottlenecks, management capability, and integrity and financial management.

AIA has made progress in deepening ESG engagement with investee companies. Company management shared that it has designed an ESG rating scorecard which embeds ESG considerations within its investment research process. AIA has already invested in over USD5 billion in a combination of renewable energy, green, social and sustainability bonds, with plans to grow this in the future. Aside from new investments, AIA has also reviewed its existing investments. As of October 2021, AIA took active steps and divested its directly-managed listed equity and fixed income exposure to coal mining and coal-fired power businesses. This was completed seven years ahead of schedule.

Summary

Our engagement has highlighted that AIA has built a resilient and sustainable business and continues to play a leading role in shaping a more sustainable future for its industry and the communities that it operates in.

[18] AIA 2021 ESG report.

Team profiles

Mayur Nallamala

Head of RBC Asian Equity, Senior Portfolio Manager

24 years of experience

BSc (Economics and Economic History) (1998), London School of Economics, U.K.

Mayur is a senior portfolio manager and head of the Asian Equity team at RBC GAM. Prior to joining the firm in 2013, he was a portfolio manager at a global asset management firm, responsible for Asia Pacific ex-Japan mandates, managing assets on behalf of sovereign wealth, institutional and retail clients around the world. Mayur had earlier worked at major brokerage firms in London and Hong Kong, working in derivatives and equity research. He began his career in the investment industry in 1998.

Siguo Chen

Portfolio Manager

10 years of experience

MSc (Finance) (2012), HEC Paris, France; BSc (Mathematics and Applied Mathematics) (2010), Beijing University of Aeronautics and Astronautics, China.

Siguo is a portfolio manager on the Asian Equity team at RBC GAM. She is the lead manager for the team's China strategy and is also the team's healthcare specialist. Prior to joining RBC GAM in 2017, Siguo was a sell-side equity analyst with a multinational investment bank where she specialized in China and Hong Kong consumer sectors and Hong Kong Equity strategy. She started her career in the investment industry in 2012.

Maya Funaki

Portfolio Manager

12 years of experience

BA (Financial Economics) (2011), Columbia University, U.S.

Maya is a portfolio manager on the Asian Equity team at RBC GAM. She is the lead manager for the team's Japan strategy and is also the team's industrials specialist. Prior to joining the organization in 2015, Maya had worked as an analyst at a multinational investment bank in the investment banking division. She started her career in the investment industry in 2011.

Derek Au

Portfolio Manager

10 years of experience

CPA, CA (2011), MAcc (2009), BSc (Accounting and Financial Management) (2008), University of Waterloo, Canada.

Derek is a portfolio manager on the Asian Equity team at RBC GAM. He is the team's communications, technology, and consumer specialist. Derek joined the firm in 2013 as part of a graduate program that allowed him to work in a variety of roles in Toronto and Hong Kong across fixed income, Canadian equities, and Asian equities. He had earlier worked at a global accounting firm, where he was responsible for the financial advisory and audit of publicly listed corporations in Toronto. He started his career in the investment industry in 2013.

Chris Lai, CFA

Portfolio Manager

11 years of experience

CFA (2014); MBA (Finance Strategy) (2012), London Business School, U.K.; BBA (Finance) (2007), The McDonough School of Business, Georgetown University, U.S.

Chris is a portfolio manager on the Asian Equity team at RBC GAM. He is the team's financials and real estate specialist. Prior to joining the organization in 2015, Chris was a sell-side equity analyst at a multinational investment bank where he specialized in the financials sector across Asia. He had earlier worked at a major financial services holding company in a number of sales and risk management roles in different parts of the world. Chris started his career in the investment industry in 2012.

Selina Lu, CFA

Portfolio Manager

13 years of experience

CFA (2015); MBA (2018), Rotman School of Management, Canada; BBA (Accounting) (2010), University of Toronto, Canada.

Selina is a portfolio manager on the Asian Equity team at RBC GAM. She is the team's commodities, utilities, and consumer specialist. Selina joined the organization in 2018 as a part of a graduate program that allowed her to work in a variety of roles in Toronto and Hong Kong across North American equities and Asian equities. Prior to this, she had worked at a major Canadian financial institution, gaining experience in corporate banking, credit risk and finance. Selina began her career in the investment industry in 2010.

David Soh

Head of Research,
Portfolio Manager

18 years of experience

Certificate in ESG Investing, CFA Institute (2022); MSc (Investment Management) (2013), Hong Kong University of Science and Technology, Hong Kong; BSc (Political Science) (2005), Korea University, South Korea.

David is head of research and a portfolio manager on the Asian Equity team at RBC GAM. Prior to joining the organization in 2014, David had worked at a multinational investment bank specializing in quantitative investment strategies for Asian equities, having earlier worked as a management consultant at a global consultancy firm. He started his career in the investment industry in 2007.

Anson Ko

Analyst

1 year of experience

BSc (Quantitative Finance) (2021), Hong Kong University of Science and Technology, Hong Kong.

Anson is an analyst on the Asian Equity team at RBC GAM. He works closely with portfolio managers to support bottom-up research across all sectors in the Asia Pacific region. Prior to joining the organization in 2021, which is when he started his career in the investment industry, Anson successfully completed internships both with his current team and also sell-side equity research teams at global investment banks.

Yuya Hashinaga

Analyst

3 years of experience

BA (Policy Management) (2019), Keio University, Tokyo, Japan.

Yuya is an analyst on the Asian Equity team at RBC GAM working closely with portfolio managers to support bottom-up research, primarily on Japan. Prior to joining the organization in 2022, Yuya was a buy-side equity analyst with a leading asset manager in Tokyo where he specialized in the Japanese retail and consumer sectors. Yuya started his career in the investment industry in 2020.

Qian Yu

Analyst

6 years of experience

MEng (Technology Management for Innovation) (2017), University of Tokyo, Japan; BEng (Electronic and Electrical Engineering) (2014) (Fudan-Birmingham undergraduate 3+1 collaboration), University of Birmingham, U.K.; BSc (Microelectronics) (2014), Fudan University, China.

Qian is an analyst on the Asian Equity team at RBC GAM. In this role, he is responsible for assisting in China equity investment research. Prior to joining the organization in 2021, Qian was a sell-side equity analyst with a multinational investment bank in Shanghai where he specialized in the China industrials sector. He started his career in the investment industry in 2017.

Owen Ou, CFA

Portfolio Engineer

9 years of experience

CFA (2018); MStat (2020), University of Hong Kong; BEng (Civil Engineering) (2014), BBA (2014), Hong Kong University of Science and Technology, Hong Kong.

Owen is a portfolio engineer on the Asian Equity team at RBC GAM. He is focused on portfolio construction and risk analysis. Prior to joining the organization in 2018, Owen was an analytics consultant at a major financial data and software company, specializing in quantitative modelling and portfolio analytics. He started his career in the investment industry in 2014.

Clement Cheng

Head of Asian Equity Trading

18 years of experience

MBA (2010), Australian Graduate School of Management, Hong Kong; BComm (Accounting) (2002), Macquarie University, Australia.

Clement is a senior trader and head of Asian Equity trading on the Asian Equity team at RBC GAM. He manages the Hong Kong trading desk and executes trades for the organization's Asia Pacific, Japan, and China strategies. Prior to joining the firm in 2014, Clement had gained experience at major buy-side and sell-side institutions. He began his career in the investment industry in 2005.

Kathy So

Asian Equity Trader

6 years of experience

MA (Philosophy) (2017), The Chinese University of Hong Kong; BSc (Economics and Finance) (2011), The University of Hong Kong.

Kathy is a trader on the Asian Equity team at RBC GAM. She joined the organization as an equity trader in 2016, which is when she started her career in the investment industry, specializing in Asian markets. Kathy began her career in financial journalism with experience anchoring financial television programs covering Asia, Europe and U.S. markets.

Contact us

We hope you have found our ESG 2023 report useful.

To ensure that we continue to meet our key stakeholder needs and interest, we welcome feedback on how we can improve our future efforts. Details of how to contact us are provided below.

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